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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/838,083	04/19/2001	Woo Sik Yoo	M-11439 US	9578

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EXAMINER
FOX, CHARLES A

ART UNIT	PAPER NUMBER
3652	

DATE MAILED: 03/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/838,083	YOO, WOO SIK	
	Examiner	Art Unit	
	Charles A. Fox	3652	

-- The MAILING DATE f this communication appears on the cover sheet with the correspondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disp sition of Claims

4)☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-20 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 18 May 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachm nt(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Claim Rej ctions - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3,5-7,11-13,15,16, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Beaulieu et al. in regards to claims 1-3, and 5-7 Beaulieu et al. (US 5,882,413) disclose a method for transporting semiconductor wafers comprising:

providing a processing system (10) including a transport module (12) and a process chamber (14);

extending a semiconductor transport device (22) from said transport module (12) into adjacently positioned container, said container being a separate component from said processing system;

removing at least one wafer (s) from said container using said wafer transporting device;

wherein the transport device (22) comprises a robot including an extendible arm and an end effector (29);

and the transport device (22) is in a fixed position;

placing the wafers (s) in a storage position (34);

wherein the process chamber is a chemical vapor deposition chamber;

transporting the wafers (s) between a cooling chamber (36) and a process chamber (14).

Regarding claims 11-13,15,16, and 19 Beaulieu discloses an apparatus for transporting semiconductor wafers comprising:

a processing system (10) including a transport module (12) and a process chamber (14);

a semiconductor transport device (22) disposed in said transport module (12);

a container configured to hold a plurality of semiconductor wafers (s);

wherein said container is a separate device from said processing system; and

said transfer device (22) is adapted to extend into said container and deliver said wafer into a process chamber (14);

wherein the transport device (22) comprises a robot including an extendible arm and an end effector (29);

and the transport device (22) is in a fixed position;

a storage position (34) in said processing system wherein said transport device (22) can deliver said wafer into storage location (34);

process chamber further has a cooling chamber (36) wherein said transfer device (22) is configured to deliver a wafer (s) to said cooling location;

the container comprises a wafer cassette.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4,10, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beaulieu et al. as applied to claims 1 and 11 above, and further in view of Gordon et al. In regards to claims 4 and 14 Beaulieu et al. teach the limitations of claims 1 and 11 as above, they do not teach using a Front Opening Unified Pod (FOUP).Gordon et al. (US 6,013,920) teach an apparatus (20) that uses a FOUP (22) as a means for carrying and introducing wafers to a process system.

It would have been obvious to one of ordinary skill in the art, at the time of invention that the apparatus taught by Gordon et al. could have been combined with the process system taught by Beaulieu et al. in order to allow the containers to be transported to the process device without the wafers being exposed to an uncontrolled environment.

In regards to claim 10 Beaulieu et al. teach a method for transporting a semiconductor wafer comprising:

providing a processing system (10) with a transport module (12) and a process chamber (14);

extending a robotic arm with an end effector into a load lock (16);

removing said wafer (s) from load lock chamber (16) and placing said wafer (s) into a process chamber (14).

Beaulieu et al. do not teach a container holding the wafers that is a FOUP. Gordon et al. teach a FOUP (22) and a docking device (20) that is made to be mounted on a semiconductor processing system. It would have been obvious to one of ordinary skill

in the art, at the time of invention that the FOUP and docking system taught by Gordon et al. could have been added to the process system taught by Beaulieu et al. to allow a wafer container to maintain a controlled interior environment when remote from the process apparatus, and still be easy to open so as to access the wafers when docked at the process station.

Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beaulieu et al. as applied to claims 1 and 11 above, and further in view of Moore et al. Beaulieu et al. teach the limitations of claims 1 and 11 as above, they do not teach the processing system as comprising a single rapid thermal processing chamber. Moore et al. (US 6,151,447) teach an apparatus with a rapid thermal processing chamber. It would have been obvious to one of ordinary skill in the art, at the time of invention that a rapid thermal chamber as taught by Moore et al. could have been used as the process chamber taught by Beaulieu et al. as modular chambers are well know in the art, and said chambers are designed to perform many processing steps including rapid thermal processing.

Claims 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beaulieu et al. as applied to claims 1 and 11 above, and further in view of Yonemitsu et al. Beaulieu et al. teach the limitations of claims 1 and 11 as above, they do not teach gate valves between the transfer and process chambers. Yonemitsu et al. (US 6,143,083) teaches a process system with a gate valve (93) between a transfer module (50) and a process module (70).

It would have been obvious to one of ordinary skill in the art, at the time of invention that a gate valve positioned as taught by Yonemitsu et al. could have been used on the apparatus taught by Beaulieu et al. to form a seal between the chambers that is easily opened and closed, thereby allowing passage of a wafer through the gate valve and segregation of the process chamber from the transfer chamber.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suda et al. in view of Gordon et al. Suda et al. (US 6,053,980) teach a system for transporting a semiconductor wafer (5) comprising:

> a processing system (1) including a transport module (100) and a single wafer process chamber (56);
>
> means (30) for accessing a container (40) holding wafers (5);
>
> wherein said container (40) is a separate component from said process system;
>
> said means for accessing said container is fixed in position within said transport module to remove at least one wafer from said container and place said wafer in said single process chamber.

Suda et al. do not teach the container as being a FOUP. Gordon et al. teach an apparatus (20) that uses a FOUP (22) as a means for carrying and introducing wafers to a process system. It would have been obvious to one of ordinary skill in the art, at the time of invention that the FOUP and docking port taught by Gordon et al. could be used with the process apparatus taught by Suda et al. in order to allow a wafer container to maintain a controlled interior environment when remote from the process apparatus,

and still be easy to open so as to access the wafers when docked at the transport module.

The prior art made of record and not relied upon, but considered pertinent to applicant's disclosure is: Zinger (1995) and Flegal (1996).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles A. Fox whose telephone number is 703-605-4294. The examiner can normally be reached between 7:00-4:30 Monday-Thursday and on alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen D. Lillis can be reached at 703-308-3248. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

caf
March 14, 2002

CHRISTOPHER P. ELLIS
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TECHNOLOGY CENTER 3600